

## Clinical Section

### Drug Shortage in Wartime

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The growing or production of drugstuffs is a world-wide business, which in normal times means a large international distribution. In wartime, this distribution is greatly reduced and many sources are isolated from ordinary markets. To meet such emergencies, various measures are adopted: official rationing, to conserve existing stocks; substitution of closely allied materials of home growth or production; utilization of chemical resources to develop new synthetic drugs in adequate amounts. For years Germany was the centre for the last method: many of you will recall the desperate efforts made in the last war to prepare "Aspirin" and "Salvarsan" in British and American chemical factories, and some of you may know of the toxicity of those early samples made in our factories. To-day the United Nations' chemists are far better off than they were 25 years ago, but, on the other hand, so many new products of military importance are prepared from the crudes ordinarily used to produce drugs that a definite shortage in new drugs is at hand. The cheap labour of the East Indies and Europe, which led to their predominance in the growing of medicinal plants, is no longer available to the United Nations, and home cultivation of these or similar plants becomes a slow and expensive business. For example, belladonna was almost a European monopoly, quinine an East Indian one, menthol and camphor Japanese. The United States is slowly developing larger plantations of belladonna and mint, Brazil is harvesting wild cinchona, and camphor is expensively synthesized. In the face of such difficulties there must be wider use of suitable substitutes, and some are suggested below.

Glycerine comes normally from fats, but may be synthesized from petroleum also. With the tremendous utilization of glycerine for explosives, medicinal use must be reduced to a minimum. There is no true substitute, and petroleum has too many other uses to allow of being employed to make extra glycerine. Use of glycerine for flavouring mixtures or for cosmetic use simply must be curtailed or abolished.

Olive oil is in short supply because of the loss of European sources. In practically all cases, corn oil, peanut oil, cottonseed oil or other less well-known vegetable oils may be used interchangeably with olive oil.

Animal oils, chiefly fish-liver, are short because of restricted fishing or loss of ordinary sources (Norway, etc.). Canada has helped the United Nations here by increasing recovery of livers in her fishing fleet and by utilizing livers

from other than ordinary sources. Cod-liver oil is replaceable by dogfish-liver, shark-liver, halibut-liver, etc., and new factories have been set up to assure prompt treatment of the livers as soon as possible after landing. The use of vitamin concentrates permits the use of many fish-oils which could not be taken in their native state due to unattractive taste or colour or odour.

Mercury was in short supply for a time but new mines have relieved this condition greatly. Potassium, in peace-times coming in large amount from Germany, has been supplied from North American sources in sufficient quantity to escape rigid control of potassium salts. Manganese is too valuable as a war material to permit of the widespread use of such oxidants as potassium permanganate, but solution of hydrogen peroxide will supplant very largely such deficit. The older drug, ferric chloride, has good oxidizing qualities which have been neglected. Citrates and tartrates, normally coming from France, are now in short supply, but their largest drug use was as a laxative (Rochelle Salt, Seidlitz Powder) and plenty of other saline laxatives are available.

Atropine is definitely scarce. Supplies on hand should be reserved for ophthalmic use. Systemic use can be supplanted by either dried stramonium or hyoscyamus, or their extracts or tinctures. Both these plants grow easily in North America in a wild state and can be cultured rapidly. The spasmolytic action of atropine can also be supplanted by two synthetics which have the added advantage of greatly reduced action on secretion: Syntropan, and Trasentin.

Opiates are scarce because of transportation difficulties and enemy occupation. China and Turkey were the chief producers, with India a later source. The opium poppy would grow easily in many parts of North America, but labour costs would bring the cost of the crude gum to many times the price prevailing in peacetime. Even so, Governmental cultivation may be utilized if necessary. Newer synthetics are a more favourable field of development: even now there exists an excellent substitute for morphine which will be available within a short time. At the present time, civilian use of morphine should be rigidly scrutinized: mild degrees of post-operative pain do not compare with the shock-producing pain of wounded soldiers. Every grain of morphine saved for the troops is a military contribution just as important as shells and bullets.

Quinine was supplied almost exclusively from the East Indies, and this source is in enemy hands. Yet the Japanese, with all this quinine, suffer more from the ravages of malaria than do United Nations troops serving in the same area. The answer lies in the brilliant analytical work of one American pharmaceutical firm which cracked some of Germany's most guarded patents and is now producing both Atabrine and thetics bid fair to supplant in very large measure Plasmquine for the United Nations. These syn-ure the former use of quinine in malaria: certainly they are much more efficient in sterilizing the blood of malarial patients and so reducing the spread of disease in a congested area.

Cocaine and other local anaesthetics are still available but at much higher prices: this seems to be a question of supply and demand rather than actual shortage, although labour costs have had a fair amount to do with the increased price. So many of these drugs are synthetic that no true shortage should develop except where military need calls for diversion to military use of the crudes from which the anaesthetic is normally processed. The military demand is of course many times that of peacetime, and so some restriction of civilian use may occur.

Essential oils are rapidly vanishing from the market. Many of the producing areas are in enemy hands, and transportation difficulties account for much of the remainder. The only ones of great importance are eucalyptus, mint and camphor. United States is busily enlarging the cultivation of mint as a farm effort, and menthol can be produced synthetically if necessary, although at a marked increase in price. Eucalyptus comes from Australia in greatest quantity, although new plantations are coming into production in others of the United Nations. A recent discovery may change the picture entirely, even after the war. Desert sage-brush has been considered a nuisance hitherto: now it is possible to distill from this wild plant, of which there is an almost unlimited supply, both camphor and eucalyptol, and at prices only a fraction of those prevailing even in peacetime.

Antiseptics (external) of the aromatic or chlorinated type are becoming short simply because "coal-tar" is a source of toluol (from which T.N.T. is prepared) and other aromatic bodies of military importance. Consequently, phenols and cresols must be obtained from other sources or restricted in supply. Chlorine is an important military commodity, and its civilian use is consequently being reduced. Dettol, a chlorinated xylenol, is hit by both restrictions. The use of acridine and aniline dyes may supplant some of the aromatic antiseptics, mercurials may aid, and iodine is still available in fair amount.

There are other shortages of a minor nature, e.g., acacia, tragacanth, senna, etc., but substitutes are available for many, both from nature

and the chemical laboratory. The occupation of North Africa will allow a fair amount of these materials to find their way again into the hands of the United Nations. Perhaps the military events of the coming summer will re-open many sources now closed to us and assist in relieving serious shortages. It should be remembered that occupied countries have been plundered of medical supplies along with food, and enfeebled populations are going to require large amounts of drugs as well as food before they can again become an economic asset. This may mean the persistence of some shortages in North America for a fairly long time, but this is a relatively small hardship to put up with in a country which has been spared so much of the physical ravages of war.

The writer wishes to express his thanks to Mr. H. Dandy, pharmacist of the Winnipeg General Hospital, for valued assistance in preparing this paper.

## Case Report 1

### Ulcerative Colitis with Hypoproteinaemic Oedema by Dr. Abraham Hollenberg

Mrs. A.—. Age, 40 years.

Admitted to St. Boniface Hospital, May 7, 1942.  
E.C.—Swelling of limbs—10 weeks (Feb. 21st, 1942).

H.P.I. — Was in a hospital down east. Diagnosed Ulcerative Colitis because of diarrhoea and much blood in stools for several months. While recuperating from her diarrhoea about ten weeks ago her feet and ankles began to swell. One week later her face and hands became puffed, but the latter improved.

Treatment—down east.

- (1) One blood transfusion
- (2) New type of pill (sulfaguanidine?) improved markedly—no blood in stool and diarrhoea somewhat controlled.
- (3) Iron pills and vitamins.
- (4) Restricted fluids.

Past History—Quinsy—T & A.

Family History—Negative.

Menstrual—Para 0 Gravida 0. Has been menstruating once in two months since the onset of her illness.

Systems—Negative except for:

- (1) Bloody diarrhoea
- (2) Weakness
- (3) Loss of weight.

Physical—Pulse 70. Temp. 98°. Resp. 16.

Pale, anaemic—co-operative woman, not in any pain or distress.

Heart—N.A.D. B.P. 100/60.

Chest—Dullness, upper left lobe, no adventitious sounds.

Abdomen—Suggestion of mass in R.U.Q. (swollen liver). No tenderness.

Extremities—Some pitting on pressure on dorsum of both feet.

Lab. Findings—May 8, 1942. B.U.N.—Normal.

Blood Count	(Normal 7.5%)
May 11, 1942—	Alb. 1.65%
R.B.C. 4,460,000	(Normal 4.5%)
W.B.C. 7,500	Glob. 1.94%
HB 73%	(Normal 2.5%)
C.I. 0.9	June 22, 1942—
Blood Proteins	Total 4.11%
May 12, 1942—	Alb. 1.69%
Total 3.59%	Glob. 2.42%

As Out Patient—

July 16, 1942—	Blood Protein
R.B.C. 2,920,000	July 16, 1942—
W.B.C. 6,700	Total 4.5%
HB 56%	Alb. 2.1%
C.I. 0.9	Glob. 2.4%

Urinalysis—Negative.

X-Ray Findings—

May 9, '42—descending, transverse and ascending colon mottled—absence of haustral markings—suggesting colitis.

May 11, '42—Barium series of stomach and small bowel negative.

May 9, '42—Chest—left side opaque to second rib, suggesting an effusion.

June 20, '42—Chest plate negative.

Treatment—On admission put on high protein and salt-free diet.

May 13, '42—given a plasma transfusion, 250 cc.

May 17, '42—Put on:

1. High prot—low residue diet—6 meals a day.
2. Fluids—but no fruit juices (on account of colitis).
3. Three raw apples a day.
4. Barium sulfate 2 drams t.i.d.
5. Liver Extract—1cc. daily—40 days.
6. Vit. C.—25 mgm—T.I.D.
7. Vit. D—m.xx T.I.D.
8. Vit. B, 1cc. Intramusc.
9. Intake and Output.

May 19, '42—(1) Sinapisms to chest (2) Codeine for Pain (3) Diuretic (Amm. Chlor). Carried on till patient discharged.

June 7, '42—Out of bed.

Progress—While in hospital patient had a quite normal pulse and temperature—except for several bouts of temp.—in the 2nd week—going as high as 102 (one being after plasma transf.) Bowels were quite well controlled to 2 B.M. per day.

May 16, '42—Patient began to complain of severe pain in left shoulder and several days later developed fluid in her left chest which cleared up before her discharge from hospital. After this episode patient progressed quite well and was discharged June 27, '42, much improved.

Admitted—Sept. 1, '42.

Discharged—Sept. 20, '42.

E.C.—Since her discharge from hospital June 27, '42, her Gastro Intestinal symptoms had improved but in spite of liver injections patient has become increasingly anaemic—and so had to be re-admitted for Blood Transfusion.

Physical—Except for marked anemia, is essentially negative.

Treatment—Whole blood transfusions—while in hospital patient received 2650 cc. of whole blood (citratd).

Laboratory Findings—

Blood Count	Sept. 18, '42—
Sept. 2, '42—	R.B.C. 4,020,000
R.B.C. 2,780,000	W.B.C. 4,700
W.B.C. 6,050	HB 72%
HB 33%	C.I. 0.9
C.I. 0.61	Sept. 2, '42—
Sept. 12, '42—	Icterus Index—36
R.B.C. 3,770,000	Blood Proteins
W.B.C. 6,700	Sept. 1, '42—
HB 72%	Total 3.4 %
C.I. .97	Alb. 2.66%
	Glob. 0.74%

Progress—When patient received her first transfusion she had a marked reaction and so had to be desensitized (starting on small quantities). Otherwise patient got along quite well and was discharged very much improved. Put on Hematinic Plastules.

### Summary

This case exemplifies firstly the complications of ulcerative colitis and secondly the means at hand for combating the hypoproteinaemia.

Of the complications the pleurisy with effusion is not uncommon and it disappears with the generalized improvement in oedema. It is apparent from the blood counts that they do not give a true picture of the actual blood conditions, as, when our patient was poorest, the blood counts were apparently normal. This apparent discrepancy was due to the fact that the blood was concentrated while the plasma fluid (serum) was present in the intestinal tissues. The hematocrit method of blood study would have presented the true picture of the blood.

The hypoproteinaemia is of course due to the diarrhoea and the lack of absorption of protein. The critical level at which oedema develops is (approximately) 4% total protein. The albumin is the more important fraction of blood protein for osmotic pressure on account of its smaller molecule, its critical level of oedema is about 2.5%.



In this case our greatest ally in treating the nutritional oedema has been plasma and blood transfusions. Sensitivity to blood transfusions as evidenced by chills was overcome by frequently repeated small transfusions in increasing amounts. Once the oedema was overcome the usual methods of treating the colitis were fairly successful for the time under consideration.

## Case Report 2

### Miscarriage; Haemoglobin 7%; Hypoproteinaemia Oedema.

by Dr. Abraham Hollenberg

Mrs. M.—. Age 28. Admitted Aug. 27, 1942. E.C.—

1. Weakness, since Aug. 10th, 1942.
2. Dyspnoea, since Aug. 10th, 1942.
3. Palpitation, Aug. 27, 1942. Patient irrational for short periods.

Para: III. Grava: IV.

Miscarriage, 1941.

Menstrual—Onset 14 days; interval 28 days. duration 5 days.

H.P.I.—

April 1, 1942—L.N.M.P.

Aug. 1, 1942—Began to pass a few dark clots per vaginam. Had no pains. Felt well.

Aug. 10, 1942—Profuse vaginal bleeding. No pain. Doctor called. Bed. Packed vagina. Felt weak. Packing removed after 2 days. Bleeding not completely stopped.

Aug. 15, 1942—Bleeding stopped. Got up, out of bed.

Aug. 17, 1942—Another profuse haemorrhage—1 quart. Dizziness. Fainted—awakened at a country hospital. Second doctor called. Curettage under general anaesthetic. Remained in hospital two weeks. Treatment was rest, liver extract. Bleeding almost completely stopped. Began to cough slightly.

Aug. 28, 1942—Dizzy spells. Weakness. Palpitation. Doctor advised transfer to Winnipeg Hospital.

Aug. 29, 1942—Admitted to St. Boniface Hospital. Irrational at times. Dyspnoea. Cough. Temp. 102. Pulse 148. Chest—Heart—occasional gallop rhythm. Lungs—few scattered fine crepitations. Dullness Lt. Base. Abdomen—distended. Extremities—pitting oedema.

Aug. 29, 1942—Red Blood cells 880,000. White cells, 9,650. Hb. 6-7%. Polys 70%. Lympho 30%.

Aug. 29, 1942—Transfusions: 500 cc.s. 500. Urine—negative.

Aug. 30, 1942—Red Cells 1,570,000. White Cells 37,400. Hemo. 10%. C.I. .3.

Aug. 30, 1942—Transfusion—1000 cc.s Sulfathiazole intravenous. Symptoms same. B.P. 120/60.

Aug. 31, 1942—Transfusion 1000 cc.s. B.P. 112/70. Condition same.

Sept. 1, 1942—Still coughing. Dyspneic. Restless. Chest signs increased. Rales and Rhonchi in bases. Temp. 100. Received 500 cc.s blood.

Sept. 2, 1942—1000 cc.s blood. Urinalysis negative for Hemolysis.

Sept. 3, 1942—Red Cells 2,180,000. White Cells 36,150. Hb. 42%.

Sept. 3, 1942—Sulfathiazole grs. XV O.H. 6 High protein, low residue diet—C. 175 grams P. 125 grams; F. 75 grams.

Sept. 6, 1942—Ferrous Sulphate grs. XV t.i.d.

Sept. 8, 1942 — Condition much improved Chest signs diminished. Still sacral oedema Temp. 98.4. Brewer's yeast 3 tabs. t.i.d. Haliver oil 1 cap t.i.d.

Sept. 9, 1942—Red cells 3,029,000. Hemoglobin 56%. Color Index .81.

Sept. 9, 1942 — Sulfathiazole discontinued Patient greatly improved.

Sept. 11, 1942—Onset of dyspnoea. Slight cyanosis. Oxygen administered.

Sept. 12, 1942—Dyspnoea increased. Cyanosis. Pain left chest. B.P. 120/60. Administered oxygen. Coramine 1 Amp. Morphine 1/6. Pot Iodide gr. XV t.i.d. Digitalis min. XX b.i.d.

Sept. 13, 1942—Gallop rhythm. Cardiac rate 120—irregular. B.P. 140/100. Coughed up bloodstained sputum. Coarse creps and rhonchi both bases.

Sept. 14, 1942—Condition improved.

Sept. 16, 1942—Heart rate regular. No gallop rhythm. Dyspnoea diminished. Cyanosis disappeared.

Sept 23, 1942—Red cells 3,720,000. White cells, 5,700. Hb. 68%. C.I. 72.

Sept. 23, 1942—Patient feels well—wants to get up. Color good. No pain. No dyspnoea. No oedema. Temp. 97.4. Heart regular. Chest signs—some basal creps.

### Summary of Treatment

In local hospital—

1. Bed.
2. Packing vagina.
3. Uterine curettage.
4. Liver extract.

St. Boniface Hospital—

1. Diet—High protein, high caloric, low residue diet.
2. Repeated blood transfusions.
3. Ferrous sulphate gr. XV t.i.d.
4. Brewer's yeast tabs. III t.i.d.
5. Haliver Oil 1 capsule t.i.d.
6. Sulfathiazole grs. XV O.H. 6.
- Acute Episode, Sept. 12, 1942—
7. Coramine 1 Amp.



8. Morphine 1/6.
9. Pot. Iodide gr. XV t.i.d.
10. Digitalis M XX b.i.d.

### Summary

This case exemplifies the extremes to which a patient may pass in exsanguination when the bleeding occurs over a long period of time—in this case the estimation of hemoglobin was between 6 and 7%. It also exemplifies the benefit that massive repeated transfusions can bring in

such a case and further, that the transfusions can be given simultaneously with intramuscular sulphathiazole which was necessary to combat the pneumonia of embolic origin.

In this case there was also present massive generalized oedema obviously due to the low blood protein level. This was greatly benefitted by the transfusions and disappeared with the improvement in the blood condition by the high protein diet.

## Mice in Mythology and Medicine

To Walt Whitman a mouse was "miracle enough to stagger sextillions of infidels," and the literature of all nations abounds in allusions to the virtues and vices of a creature than which few others have played so important a rôle in the history of medical research. The Sanscrit word for mouse, "mush," is derived from a verb meaning "to steal," so that even in the cradle days of mankind the predatory habits of mice were known.

### The Mouse in Egypt

In ancient Egypt the mouse was looked upon as the spontaneous product of the Nile mud, and traces of this belief have survived into modern times. Ælianus, about A.D. 100, recorded that in lower Egypt mice were generated by rain-drops, and this fantastic story was repeated by later writers. As late as 1648 Van Helmont wrote in his "Ortus Medicinæ:"

"If a dirty shirt be stuffed into the mouth of a jar in which there be grains of wheat, within a few days the ferment, drawn from the shirt and changed by the odour of the grain, transforms the wheat itself, incrusting with its own skin, into mice. And this is the more to be marvelled at because vermin of this kind, distinguished by marks of sex, breed with those that have sprung from a female of the parent stock. Thus and in this way the equality of both strains and the vitality of the ferments, strong as oak, will become evident. What a wonderful thing! From grain, from a shirt, mice! And not indeed little fellows, nor sucklings, nor dwarfed, nor abortive, but forthwith, already developed, they scamper forth."

In the holy Egyptian city of Bast stood the famous cat mausoleum. To the Egyptians the cat represented all the virtues, and the sacred cat Bubastis in particular was the goddess of love, of fertility, and of childbirth, although the precise factors responsible for this deification of the cat remain obscure. To blame the mouse, which in a grain-growing part of the world like the Nile delta was the very incarnation of evil, though possibly accurate, is prosaic and mundane. The Egyptian Book of the Dead refers to mouse-eating in an incantation which the dead man is meant to use for frightening a wicked ser-

pent in the nether world: "Stop! or thou shalt eat the mouse, the abomination of Re (the Sun)."

### Japanese and Eastern References

In Japanese folklore the mouse is a wise animal, being the messenger of Daikoku, god of wealth, who is represented as standing or sitting on two sacks of rice and playing with a white mouse, while the time between 11 p.m. and 1 a.m. is known as the hour of the Mouse. In Greek mythology the tale of Apollo Smintheus, the Mouse-Apollo, is full of unsolved difficulties. According to the most popular legend it was Apollo who once saved his country from starvation when a whole army of mice threatened to destroy the harvest, and it is interesting to find that in the Smintheion of Hamaritus in the Troad white mice had their holes under Apollo's altar and were solemnly fed in the temple.

To the Semites the mouse was an unclean animal, the eating of which, according to Leviticus and Isaiah, was forbidden: "These also shall be unclean unto you among the creeping things that creep upon the earth; the weasel, and the mouse, and the tortoise after his kind . . ." and "eating swine's flesh, and the abomination, and the mouse . . ." The Eastern imagination long regarded the mouse as the symbol of destruction, and the havoc caused by this animal was part of the punishment inflicted on Philistia because of the detention of the Ark . . . "Wherefore ye shall make images of your emerods, and images of your mice that mar the land . . ." (I Samuel vi, 5). Destruction of crops brings the specter of famine in its train, and in history the association of typhus or plague with famine is notorious.

### The Therapeutic Mouse

The mouse is one of the most ancient of medicines, and its popularity has survived for the length of sixty centuries. During excavations at Naga ed Dêr in Upper Egypt in 1901, human bodies belonging to an ancient era prior to the invention of embalming were disinterred. Buried in direct contact with the hot, dry sands of the desert, these remains were found to be more or less completely preserved by a process of natural mummification; and the intestinal canal of many children contained remnants of mice which had

been eaten after being skinned—probably a last resort in the treatment of some fatal disease. The Papyri abound in references to mice employed in the cure or alleviation of various afflictions: skinned and cooked or fried for internal administration and slit open or in the form of an ointment for external use. To relax the stiffness occasioned by rheumatism, an ointment made up with mouse fat was prescribed. Pliny in his *Natural History* listed a large number of mouse prescriptions of the whole animal or its parts, particularly its tail, ashes, blood, bile or dung, and it was used for the treatment of such complaints as the bites of serpents, the stings of scorpions, alopecia, earache, halitosis, gout, warts and enuresis. The lingering interest of the last reference lies in the authentic fact that in English country schools of the last generation children who had wet their beds in the night were next day punished by having to eat a penitential mouse pie before their school fellows. Dioscorides, who lived in the first century A.D., recommended roast mice taken internally to check dribbling at the mouth in children.

It is not surprising to find that in Christian Europe an animal with such characteristics as the mouse became the traditional satellite of witches. Yet old notions and practices are hard to kill and allusions to the medicinal virtues of the mouse continued to appear even in Christian times. St. Hildegard of Bingen (1099-1179) mentioned the mouse among other remedies for falling sickness, and Beaumont and Fletcher in *The Knight of the Burning Pestle* (1607) referred to this creature as a cure for chilblains. In several parts of the British Isles to this day roast mice are popularly esteemed for the treatment of diseases such as whooping-cough and chronic rheumatism, conditions in which orthodox medicine is apt to fail.

From earliest times the relationship between medicine and music has been friendly, so that it may not be inappropriate to end on a musical note. It is a well known fact that mice are fond of music, especially that of the violin. Paganini one night had composed a melody which he proceeded to play in the dark, as it were in a dream, when suddenly he felt something walking over his feet. Quickly turning on the light, he was astounded to find himself encircled by an admiring audience of mice.

W.R.B.

Courtesy—Winthrop Chemical Co.

## Stick to Your War Savings Certificates

No better interest rates are paid on any Canadian war financing securities than on War Savings Certificates—if you hold them until full maturity.

They are meant to be held, not cashed. Canada promised that it would cash the certificates under certain circumstances, but this was done to avoid hardship in special cases, not because

cashing a Certificate before maturity was anything but bad for the owner and bad for Canada.

That promise will be kept of course, as Dominion of Canada financial obligations have always been kept—to the letter. But too many thoughtless owners of War Savings Certificates are asking Canada to give them back their cash now—without any good reason, except that they want to spend the money—and at a time when the money is badly wanted to fight the Battle of Freedom.

Every person who buys a Certificate does a patriotic action, and at the same time gets himself a good investment and a cushion against post-war hard times.

Every person who cashes in a Certificate unnecessarily, does an unpatriotic action, cheats himself of part of its value, and weakens the shock absorber which may save him from nasty post-war bumps.

The Certificate for which you pay \$4 now, is worth \$5.00 if you keep it to maturity. If you cash it after six months you only get \$4 for it. Net loss \$1!

The financiers to whom one-tenth of one per cent means a lot of money—who understand the exact value of money and interest in terms of what it is really worth, hang on to their War Savings Certificates like grim death! It is the best paying thing they can find in Canadian war investments. It is so good in fact that in order to prevent them buying huge amounts of War Savings Certificates instead of Victory Bonds, the Government limits their purchases to \$480 per head, per year.

♦ ♦

A handy and dependable urine-sugar test method has been developed by W. A. Compton, M.D., Jonas Kamlet, Ph.D., and J. M. Treener of Elkhart, Indiana, U.S.A., which requires no heat and is suitable for both laboratory and diabetic patient. The complete set can be carried in the bag or pocket and a test can be made in less than one minute.

The test consists of merely dropping a tablet into a test tube of diluted urine, allowing for reaction and examining the color. Estimations up to 2% may be made which are dependable for regulation of diets and insulin dosages.

A discussion of the test will be found in the *Journal of the American Medical Association*, October 10, 1942, page 491.—Adv.

♦ ♦

The caduceus, traditionally not a medical emblem, was adopted as such by Sir William Butts, physician to Henry VIII. On two recent French postage stamps Mercury, ambassador of the gods and god of commerce, is depicted holding the caduceus, a slender wand encoiled by two serpents.

## Editorials and Association Notes

### Manitoba Medical Review

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### Abuse of Thyroid

The habitual use of the word Dessicated written on thyroid prescriptions would prevent the patient getting the one-fifth-as-strong whole thyroid or thyroid extract. It is to be hoped that these older preparations will soon disappear from the market.

Any of the following symptoms should cause hypothyroidism to be suspected: Sensitivity to cold; dry skin; pulse under 68; undue sleepiness; vague joint aches; poor memory; falling hair; brittle nails; waking temperature below 97. A basal metabolic rate or a therapeutic trial with dessicated thyroid will confirm this diagnosis.

A case of complete myxoedema (B.M.R.-40), should be started off with about  $\frac{1}{4}$  grain daily, and gradually worked up to the top dose of 3 grains daily. Symptoms of intolerance may appear if the dosage is too abrupt.

A mild case of hypothyroidism (B.M.R.-20) will need only about one grain daily. Keeping the tablets beside the dentifrice helps to prevent them being forgotten.

Overdosage will be prevented by instructing the patient how to count the resting pulse rate weekly, and then by writing on the prescription, "Stop if resting pulse rate over 90 or irregular." A correct dosage is assumed if the symptoms show signs of clearing after one month and the resting pulse rate has risen from the sixties to the eighties.—F.G.A.

### Malodorous Lesions

While waiting for the new chemical deodorant announced a few weeks ago in the newspapers, more might be done with older methods to make life tolerable for patients who have odoriferous lesions. The comfort of other patients, nurses, and the patient's friends is also important.

The Yearbook of Therapeutics 1938, page 89, states that an application of Azochloramide dressings to a foul carcinoma will deodorize it for 24 hours. On page 95 urea crystals are said to make a foul wound odorless. Zinc cream is used to protect the adjacent skin.

A charcoal blanket is recommended as an absorber of smells in Modern Medicine, August 1942, page 52. Three-quarters of a pound of activated charcoal is sprinkled on a sheet of cloth, blanket or cotton wool, and another sheet quilted down on top of the charcoal. This, used as part of the bedclothes, absorbs the odors.

A method of avoiding the ward hazard of the closed plaster wound treatment was given in Modern Medicine in Sept. 1941, page 44. Gauze saturated in 12% Lactose was used instead of vaselined gauze. This diminished the exudate, the healing was satisfactory, and the dressings did not stick.

### Obituary

A beloved pioneer physician of Manitoba, Dr. Robert L. Ross of Morris, died on February 9, after a long illness.

Born in Oxford County, Ontario, in 1869, he was educated in the public schools of Kincardine. Coming to Manitoba in 1889 he attended the normal school and then taught for a few years until he decided to change his vocation. He graduated from Manitoba Medical College in 1898 and practiced at Morris for 38 years. Mayor of the town for several years, he was interested in community enterprises and in politics. On one occasion he contested the Morris seat in the Manitoba Legislative Assembly against the late Colin H. Campbell, Attorney-General. Other interests were the United Church, the Masonic Order, and sports, especially curling. He is survived by his widow, two daughters, and two sons, Lieut. Bryan Ross, an officer with the Royal Canadian Engineers overseas, and Dr. E. L. Ross, superintendent of the Sanatorium Board of Manitoba and of Ninette Sanatorium.



## Letter to the Editor re Tooth Extraction Dangers

Dear Sir:

*Re: Report of Clinical Pathological Case, reported February Issue, Manitoba Medical Review.*

Report of tooth extractions July 1st and July 13th ending in death—Rheumatic aortic stenosis, followed by Subacute Bacterial Endocarditis, August 10th, 1942. Warning was, every patient with congenital or rheumatic heart disease should be warned of danger of tooth extraction.

In reviewing my practise of twenty-five years there were hundreds of cases operated in our offices without any unusual results. However, our procedure used the following technique and was usually strictly adhered to:

1. Pre-operative care of mouth.
2. Pre-operative medication of patient.
3. Post-operative care of sockets.
4. Post-operative care of patient.

### Pre-operative Care of Mouth

In all mouths where pyorrhea — bleeding gums—gingivitis or Trench mouth exists (75% of all cases) we use the following technique:

1. Protect lips and cheeks with cotton rolls.
2. Force iodine 7½% followed by 40% Silver Nitrate by use of Young Applicator (which is a rubber suction cup, with drug on cotton in cup) into pyorrhea pockets and all gingival spaces down the sides of roots—around the necks of the teeth. This forces drugs down to breeding surfaces of bacteria, not superficially over the tops of the nidus of infection.
3. This technique is repeated every three or four days until all bleeding around gingival surfaces stops and bacteria are really killed or reduced in virulence and in quantity.

The patient is given the following oxidizing mouth wash to use at home three times daily:

Hydrogen dioxide, 8 ozs.

Mercury bichloride, 2 grains.

Sig: Use three teaspoonfuls in ½ glass of warm water as a mouth wash as directed.

The above technique protects the patient from undue absorption of focal infection and reduces local pain and swelling.

Keep patient from re-infection: Use of infected tooth brush—use of table utensils, etc. At home—soak tooth brush in soap and water over night and sprinkle with table salt and allow to dry in daytime. This sterilizes the tooth brush. Soak all dishes—knives, forks, spoons, etc. (20 minutes, and wash in hot soapy water.)

## Mechanical Cleansing of Mouth Plus Chemical Cleansing.

If mouth is filthy with tartar and food debris—tobacco—swollen bleeding gums—removal of tartar by scaling is necessary. Use of peroxide sprays under compressed air helps mechanically to clean the mouth—at second sitting—as soreness and pain on first sitting may make this impossible in severe Trench mouth cases. Here the use of sulfa drugs in 7½ grain doses—four times daily from beginning of treatment has shortened the period of treatment considerably.

Local anesthetics should not be used in acute inflammations or where swelling exists — but general anesthesia should be used.

Dentists and Medical men should all become enthusiastic for clean operative field in the mouth before attempting the extraction of teeth or other surgery in the mouth. If the above simple technique were adopted without fail, many lives would be saved—much osteitis and osteomyelitis could be prevented as well as systemic reaction.

### Pre-operative Medication

The use of calcium gluconate in 200 grain doses over a period of a week or ten days, given with milk or fruit juices, after meals, releases free ionic calcium into the blood. This free calcium protects the patient when a flood of bacteria and their toxins are released by surgery. Where focal infection is extensive, the ionic calcium in the blood is reduced.

Many patients have expressed gratitude for loss of lassitude by above premedication— even before surgical benefits were derived from removal of foci of infection. Post-operative hemorrhage is also reduced. Excessive loss of blood reduces the resistance of the patient very rapidly and should be prevented if possible. The use of Vitamin K has been given in addition to calcium, where past histories and blood coagulation tests indicate excessive loss of blood from extraction of teeth. Vitamin K needs to be given in units of 576 per day, over a week. (3 Ayersts or 6 Parke Davis Capsules) per day. This has prevented post-operative bleeding, but 300 units per day are useless. All histories of blood dyscrasias such as ukemias, hemophilia, secondary anemias, chronic systemic disturbances, such as rheumatic hearts, etc., need preoperative medication—orally and systematically.

### Post-operative Care of Sockets

All sockets should be cleansed with suction apparatus at time of surgery and all pathological tissues removed. If these are extensive, then fewer teeth should be removed than otherwise. Sockets are cleansed with hydrogen dioxide, followed by iodine 7½%, or Campho phenique or silver nitrate, as indicated when we see the field of operation. In some cases we also use

cold cautery to reduce bleeding and this also has a bacteriostatic effect—however it needs to be used with caution.

The recent fad of using Sulfa drugs in the sockets if packed with non-soluble adhesives, such as wax or fatty bases to keep them adhering to the bone are dangerous—as I have seen osteitis produced in both upper and lower jaws and several sound teeth on either side of the sockets lost—due to osteitis, with pain and soreness persisting for several weeks.

The Winthrop Chemical Company claims that the bacteriostatic action locally of the Sulfa drugs is as potent in 10% solutions, as when used pure as a powder and the danger of osteitis is reduced. In fact most bacteriologists claim there is very little or no value attached to using Sulfa drugs in direct contact with bacteria, but that the value is obtained by passing them through the system either by mouth or hypodermically—then they produce phenomenal bacteriostatic reactions with the aid of human secretions.

I know abdominal surgeons sprinkle sulfathiazole into the peritoneum in cases of ruptured appendix—here, however, the abdominal secretions are in contact with the drug and may form a chemical combination altogether lacking in a bony socket of a jaw. Sulfathiazole in its test tube end results produces an acid and acids dissolve bone tissue—hence the production of osteitis.

#### Post-operative Care of Patients

Systemically—most people should be made to rest over a period of hours or days—depending upon the amount of surgery done.

The use of oxidizing mouth washes prevents the growth of anerobic bacteria in tooth sockets and prevents their absorption. These should be used every hour the day of extraction. The fad of withholding mouthwashes to prevent the disturbance and formation of blood clots is without foundation in fact. Infection prevents normal blood clots from forming—not mechanical mouth cleansing.

The diet is important. Many patients lose weight and lose resistance to infection by fasting or semi-starving, until gums are hard enough for mastication. Soft solids and Junior Foods are recommended in quantity.

The bowels often lose power of peristalsis and free movements are interfered with by removal of teeth—hence a good cathartic should always be recommended and if this is ineffective, a warm water and soap enema should start the bowel movement. This is most important.

Sincerely yours,

E. Roy Bier, D.D.S.

EDITOR'S NOTE: Dr. Bier's careful technique no doubt cuts down the incidence of post-operative reaction. However, it is likely that in most cases the dentist who does the extraction never hears of the fate of those rheumatic or congenital heart cases who develop Subacute Bacterial Endocarditis. Either the connection between the two events is not recognized, or the doctor or patient's relatives do not have the heart to tell him.

In vitro experiments with various strains of Streptococcus Viridans showed Sodium Sulfapyridine to have the most lethal effect of all the Sulfa drugs. A high blood concentration of Sodium or plain Sulfapyridine is required for only a few hours following the extraction as this is the duration of the bacteraemia found in 80% of all cases after ordinary tooth extraction (not Dr. Bier's technique).

The warning against packing on top of tooth socket sulfanilamide is a valuable one.

### "—Now Reported Prisoner of War"

Over 90,000 men from the British Empire are prisoners of war.

Men in prison camps suffer both physical and mental hardships. The Red Cross helps to alleviate the former. But one who experienced captivity said: "Prison is not a mere physical horror. It is using a pickaxe to no purpose that makes a prison."

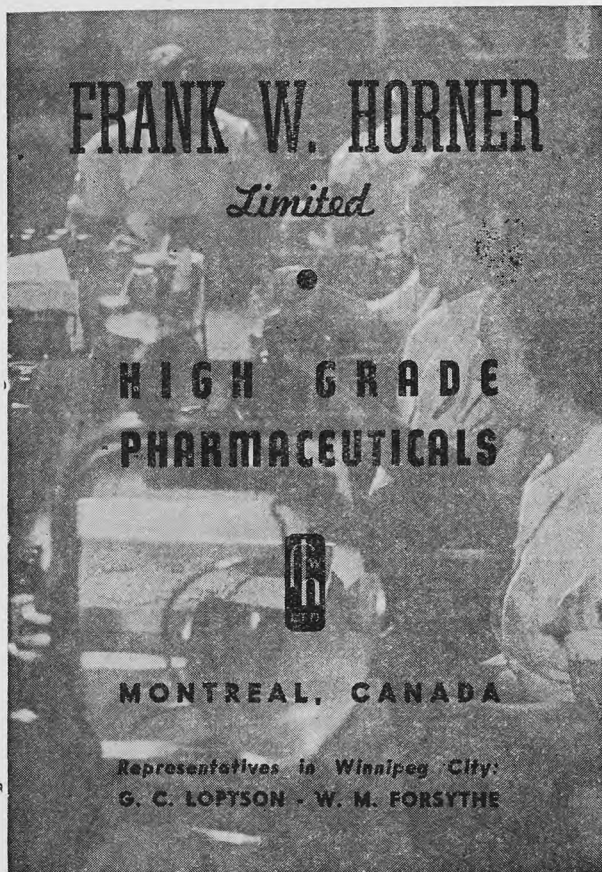
Life behind barbed wire is tolerable only if a man can keep his mind active, can have some sense of achievement. The difficult task of providing educational facilities in prison and internment camps the world over has been shouldered by International Student Service, an organization supported by students and graduates in countries where free universities still exist.

I.S.S. has headquarters in Geneva, and is permitted entry into every country in the world except Japan. It co-operates with the Red Cross, fulfilling needs which the latter does not meet. Of 2800 allied prisoners in one camp in Germany, nearly all are engaged in some form of study. An I.S.S. worker who visited the camp found the library humming with activity. Courses in Engineering, Chemistry, Physics, Anatomy and other subjects are taught by qualified instructors, themselves prisoners. I.S.S. supplies textbooks and other necessities. Despite difficulties, the men work hard, knowing that only if they keep their minds fit will they be able to overcome the trial of prolonged captivity.

I.S.S. also provides books, food, clothing, and medical supplies for students who are attempting to carry on in occupied and battle-torn countries. Among these students, tuberculosis, deficiency diseases, and starvation are rampant. In Athens, 10,000 students are being given food as well as educational help. Many French students are completely dependent on I.S.S.

Since 1937 much aid has been given to Chinese students, whose courage and endurance have aroused admiration the world over. Many of them packed books and laboratory equipment on their backs, and moved their Universities 1500 miles inland. Half of these students depend on relief. A Chinese student wrote to I.S.S.: "I am





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in debt to you not only for economic support, but also for spiritual encouragement. If I am successful in medical work in the future, your generous help will have been one of the most essential factors." Twenty dollars will support a Chinese student for a year!

The Canadian Committee of I.S.S. is under the honorary presidency of His Excellency, the Earl of Athlone. A finance drive has just been conducted in Canadian universities. Manitoba Medical College took part.

University graduates and those interested are asked to contribute. Other war charities are supported by the general public; I.S.S. must depend on those who realize the need for maintaining the mental health of men behind barbed wire, and for the continuation of education in all countries. Here is an opportunity to strengthen the bond which unites men and women who struggle for human progress in all parts of the world.

In Manitoba, contributions are made to the University of Manitoba Students Union, Broadway Bldg., Winnipeg, and designated "for I.S.S."

### Special Category Applications for Gasoline

The Council of The College of Physicians and Surgeons of Manitoba wishes to draw the attention of each registered doctor to the following details:

1. Only registered physicians in good standing will enjoy the privileges of this Special category.
2. A Special Category application along with a form issued to Physicians and Surgeons will be mailed to each physician from the Registrar's office. These two forms must be completed in detail and returned to this office.
3. Be sure to obtain your Category A.A. coupon book before attempting to complete the above forms, as its number is required.
4. Incomplete returns will necessitate delay, and perhaps inconvenience to yourself, to the controller, and to this office.

W. G. Campbell, Registrar, C.P. & S. Man.

605 Medical Arts Bldg., Winnipeg, Man.

### Contrary to Rumors—

the potency of Mead's Oleum Percormorphum 50% With Viosterol remains the same; namely, 60,000 vitamin A units and 8,500 vitamin D units per gram. MEAD JOHNSON & COMPANY OF CANADA LTD., BELLEVILLE, ONT., CANADA.

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## Personal Notes and Social News

Dr. William Glassco of Brandon, Man., was married at St. Luke's Soldiers Chapel on January 25th to Margaret Mary, only daughter of Mrs. J. W. Anderson of Winnipeg.

◆ ◆

Dr. and Mrs. J. S. Holowinski of Elphinstone, Man., are receiving congratulations on the birth of a daughter at St. Boniface Hospital, on February 11th.

◆ ◆

Capt. Joseph Brook, R.C.A.M.C., formerly of Eaton, Sask., son of Mr. C. Brook of Winnipeg, recently arrived in England.

◆ ◆

News has been received from overseas of the birth of a son to Capt. (R.C.A.M.C.) and Mrs. Ian Maclean, at Caterham, Surrey, on January 20th. Capt. Maclean is a son of Dr. Neil John Maclean of Winnipeg.

◆ ◆

Dr. Roy Martin's Neepawa rink won the Birks and the Capitol Coal trophies in the recent Manitoba Bonspiel.

◆ ◆

Dr. and Mrs. E. H. Alexander have left for the Pacific Coast for a two-week business and vacation trip. Vancouver and Victoria are on their itinerary.

◆ ◆

Congratulations are being received by Flt.-Lieut. and Mrs. E. A. Jones on the birth of a daughter (Judith Claire) at the Winnipeg General Hospital, February 9th.

◆ ◆

Dr. and Mrs. M. R. MacCharles have left for Vancouver and Victoria. They plan on returning to Winnipeg about the end of the first week in March.

◆ ◆

Dr. H. M. Edmison, who recently returned from England because of illness, has resumed private practice after spending a period in Deer Lodge Military Hospital.

### Oddities in the News

Rats at the City Dump are scurrying away from Salvage Hunters. "The rat estimate (city health department) was \$1,200, being made up as follows: Poison, \$100; printing and stationery, \$50; sundries, \$50; bounty on tails, \$1,000."—Is it possible that the printing and stationery is supplied to the rats to enable them to give notice of evacuation in writing?

### Fewer Hellos on Telephone

Greater Winnipeg telephone users made 500,000 less calls in 1942 than in the previous year—Did someone say, "What did you expect, when so many of the fair sex were occupied with war activities."

Dr. J. H. Martin, only son of Dr. J. R. Martin, of Neepawa, Man., is to be married early in March to Mary Ellen, daughter of Mr. and Mrs. M. J. Barry, of Winnipeg.

◆ ◆

Dr. John Edwin Rose, son of Mrs. Rose and the late Dr. Edwin William Rose of Gladstone, Man., is to be married to Marjorie Ethel, elder daughter of Mr. and Mrs. Arthur Bertram Gardiner of Winnipeg. The wedding is to take place March 13th.

◆ ◆

Dr. and Mrs. Brian D. Best became the proud possessors of a son (Robert Brian) on February 26th, at the Winnipeg General Hospital.

◆ ◆

Dr. and Mrs. J. Bourgouin are receiving congratulations on the birth of a son (Paul Alexander), February 23rd, at St. Boniface Hospital.

◆ ◆

Dr. and Mrs. Richard O. Burrell, 383 Kingston Crescent, are celebrating the birth of their second daughter (Sydney Olivia) on February 20th at St. Boniface Hospital.

◆ ◆

Word has been received from Ottawa that Dr. Douglas O. Waugh of Winnipeg has passed the Medical Council of Canada examinations.



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# Winnipeg Medical Society

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## MEETINGS

Third Friday, each month

## Next Meeting

March 19th

## MEETINGS

Start exactly at 8:15 p.m.

## NOTICE BOARD

By the time you read this, 80 bundles will be on their way to Britain and elsewhere. As you will see from the appended list of contributors a number of doctors have dug down—in the case of Dr. Wiebe to the tune of \$20.00. That is a very pleasant tune, Dr. Wiebe; thank you for playing it. The M.M.A. also have come through nicely. Their bowels of compassion have been moved and we are richer by a hundred dollars. In return I urge everyone not yet a member to sign up as is his duty. This year no one will be able to say that his membership brought no tangible gain. I understand that the new Health Plan is almost ready to go into effect. The M.M.A. and our Society have moulded it into its present acceptable shape and everyone who means to benefit by it should show his appreciation by joining the organization to which the credit is due.

Returning to the Overseas Fund, you will note that City Doctors are among the contributors. The list is not closed and public acknowledgment will be made of all contributions—may they be many and large.

The framers of the Constitution, among other wise precautions, forbade the spending of any money as contributions to lay organizations. This saves us a lot because every year your Executive receives letters asking for donations on various worthy causes.

The most recent of these was from the Russian Relief Committee. Everyone felt that no cause was more worthy but, as we had no power to donate, it was agreed that the doctors should be urged to give independently. Stalin isn't far wrong when he says that his countrymen are earning the lion's share of the fighting and everything we can do to help his people is little enough. I imagine we now know how decent Americans felt before they entered the war and while their fight was being waged by others.

Two matters that came before the Executive were satisfactorily disposed of. One was the taxi situation. Women in labor on several occasions had to wait so long for a taxi that their deliveries were completed in the hospital corridor or even in the car. Arrangements were made by the Executive to have the cab drivers go to such cases in a hurry or run the risk of messing up their cabs.

The second matter was the supply of corn syrup. It is difficult to understand the psychology of some manufacturers. A person with the nauseating name of "Betty Beehive" broadcasts regularly the merits of Corn Syrup. At the same time people can't get it and worst of all the babies can't get it. Thus the artificial stimulation of sales results in the depriving of the one group that really needs it. Now, as you know, you hand the patient a prescription to give to the grocer. This is indeed a strange new world. Your prescriptions are filled at the corner grocery and if you want groceries you go to the drug store.

One of the interesting sidelights on the corn syrup situation was revealed recently. A woman complained to the Ration Board that her doctor had charged her \$2.00 for a corn syrup prescription. What happened was this: A woman went to her doctor for the prescription. On her way out she asked the secretary how much she owed, and was told \$2.00. The \$2.00, however, was for a call made in East Kildonan months before. No charge had been made for the prescription and not enough for the call, yet this patient had the audacity to try to make trouble for her doctor. Ergo, "cave canem."

♦ ♦

And now for the Sixty-Four Dollar Question. "Who was the English country doctor whose birthday became a public holiday in Germany, in whose honour Napoleon struck a medal and the Empress of Russia named her first child, at whose request both Napoleon and the King of Spain released important prisoners with the almost identical remark: 'Ah, we can refuse nothing to that name'?" Here is a clue: the baby was called Vaccinoff. Yes, the answer is Jenner.

There are many interesting things in Medical History. Why not drop into the Medical Arts Club Rooms on Friday, March 12th? For a meal, come at 6:30 p.m. (and let me know to expect you); otherwise come about 7:15 p.m. Doctor Speechly is to talk on "Carl Linnaeus The Great Systematist." You will be welcome.

J. C. Hossack.



## Sincere Appreciations and Thanks a Million for the Very Welcome and Acceptable Parcels

The following are a few extracts taken from some of the many letters received from our boys in the Forces who were recipients of parcels sent by the Winnipeg Medical Society:

### *It Makes One Feel Less Alone To Be Remembered from Home.*

H. Meltzer, Oct. 20, 1942

*Would you please convey my sincere thanks and appreciation to all members for their thoughtfulness and consideration in sending Christmas parcel.*

J. B. Cram.

*Another parcel of food arrived this week and I assure you it was very much appreciated. Please convey my sincere thanks.*

T. E. Holland.

*I wish to express my sincere thanks for lovely parcel. I can assure you that contents were greatly appreciated.*

J. Anderson.

*Many thanks for the parcels received. Believe me, they are greatly appreciated.*

A. L. Jacobs.

*Your thoughtfulness in forwarding the food parcel was very much appreciated. Kindly accept my sincere thanks.*

J. Lazareck.

*I have just received parcel. Am deeply appreciative and would ask you to convey my grateful thanks.*

J. V. Williams.

*I should like to send sincere thanks for your very kind Christmas parcel of food. It was indeed greatly appreciated.*

H. Bruce M. Hunter

*Very many thanks for the most welcome parcel. After the arrival of such a parcel one's vitamin and caloric balance takes a most pleasant swing toward the super-normal.*

Athol Gordon.

*Once again I am indebted to your generosity and thoughtfulness in that much appreciated Christmas parcel.*

M. M. Brown.

*On behalf of the Manitoba Officers in our hospital, I would like very much to extend our sincere thanks for the very kind remembrances we have been receiving.*

Ben. Schoemperlen.

*Please convey my thanks for parcel. The contents were very well chosen and served as a very welcome adjunct to our plentiful but plain rations.*

W. B. MacKinnon.

*Many thanks for your two parcels. The biscuits, crackers, cheese, chocolate, etc., have added a most welcome change to the usual army grub.*

Ian Maclean.

*Many thanks indeed. Each of articles enclosed quite useful.*

J. O. Leishman.

*Please accept my sincere thanks for parcels of food. All items are most welcome. Such remembrances from old associates at home are always greatly appreciated.*

M. R. Elliott.

### Winnipeg Medical Society 101 Medical Arts Bldg. Winnipeg, Manitoba

#### Donors to The Overseas Fund

Dr. Roy P. Brown, Gladstone, Manitoba .....	\$ 5.00
Dr. C. M. Thomas, Rivers, Manitoba .....	5.00
Dr. A. E. McGregor, Sherridon, Manitoba .....	5.00
Dr. R. G. Greer, 401 Medical Arts, Wpg. ....	4.00
Dr. C. W. Wiebe, Winkler, Manitoba .....	20.00
Dr. K. I. Johnson, Gimli, Manitoba .....	5.00
Dr. George Clingan, Virden, Manitoba .....	3.75
Manitoba Medical Ass'n .....	100.00

*Please accept my thanks for the food parcel just received through the kindness of the Society. It was a very welcome gift as well as a delightful reminder of previous associations.*

C. E. Corrigan.

*Many thanks for the parcel of calories sent to me by the Society. The chocolate, cheese and sugar that it contained were welcome additions to a diet that through unforeseen circumstances, had become monotonous because of diminishing stores.*

Robt. S. Swan.

*Many thanks for your kindness in sending sugar, chocolate, cheese, etc. All are very acceptable and while we certainly don't go hungry, a few luxuries are appreciated.*

Hartley Smith.

*Parcel received. Gastronomic delight. Many thanks.*

Sol. Malkin

## A LIFT NOW



Today when the work of all Canadians is contributing in some measure to Canada's war effort, the health-building role of the physician in his community has become increasingly important. The government's nutrition campaign is a forward step but such a programme of mass education is invariably a slow process. Meanwhile a "lift" is needed now to reduce absenteeism and to overcome fatigue. When a deficient diet is a causative factor, "Alphamin" will prove an ideal supplement. One capsule and one "comprill" daily is the recommended dosage.



# "ALPHAMIN"

A balanced preparation of essential vitamins and minerals.

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## Department of Health and Public Welfare

### Industrial Hygiene in Manitoba

by G. S. Baldry, B.S. (Ch. E.), M.D., D.P.H.

Director, Bureau of Industrial Hygiene

Industrial Hygiene is an applied science as distinguished from the theoretical sciences, such as mathematics and physics. Its aim is to protect and improve the health of workers. As an applied science, it has a number of major subdivisions, among which may be mentioned:

(1) *Industrial Medicine*. This includes industrial medical care, prevention of industrial illness, hospitalization, and medical aspects of compensation.

(2) *Industrial Mental Hygiene*. This includes the behavior of the worker, and the mental state and health of workers.

(3) *Industrial Management*. This includes the hours of labour, rest periods, adequate food, supervision of general economic relationships, the workers and their health.

(4) *Industrial Sanitation*. This includes the environment of the workers, buildings, machinery, air conditions, exhaust ventilation and in general, all engineering aspects.

(5) *Industrial Hazards*. This includes the detection and estimation of hazards; prevention, diminution and elimination of hazards, toxicity, etc.

#### Historical—

The first work on industrial hygiene in Manitoba was a silicosis survey on five Central Manitoba mines in January, 1930, by Dr. J. M. Sigvaldson.

In March, 1932, the Manitoba Sanatorium Staff examined a small series of miners to investigate the possibility of silicosis at a northern mine. Dr. E. D. R. Bissett surveyed nine mines for silicosis in 1936.

The Manitoba Workmen's Compensation Act was amended in 1936 to include compensation for silicosis contracted in the industries of mining or iron, steel or metal foundries.

The Department of Health and Public Welfare, in 1936 undertook to carry out yearly silicosis examinations at the mines, in conjunction with the Workmen's Compensation Board. Accordingly, a Division of Industrial Hygiene was established to do this work, under Dr. M. R. Elliott, of the Division of Disease Prevention.

A summary of the total number of men examined at the mines and in Winnipeg, is given in Table A:

TABLE A  
Silicosis Surveys—Manitoba  
1930-1942

Year	No. of mines surveyed	Total No. of miners examined	Physician in charge of survey
1930	5	400	Dr. J. M. Sigvaldson
1932	1	48	Dr. E. Ross
1936	9	477	Dr. E. D. R. Bissett
1937	8	1431	Dr. M. R. Elliott
1938	9	983	Dr. M. R. Elliott
1939	8	1066	Dr. M. R. Elliott
1940	6	1002	Dr. D. L. Scott
1941	4	1982	Dr. D. L. Scott & Dr. R. A. McPherson
1942	5	1760	Dr. D. L. Scott
TOTALS	55*	9149	

\* 16 different mine companies.

A Regulation of "The Manitoba Factories Act," passed in 1941, authorized that all duly qualified physicians in the Province of Manitoba must report any case or suspected case of specific industrial disease to the Director of Industrial Hygiene of the Department of Health and Public Welfare.

Manitoba has become increasingly industrialized for the last ten years. This was more noticeable in the pre-war and early war years. There was a definite need felt for a consultative agency to give authoritative advice on the health of workers and

medical services in industry. These events led the Manitoba Legislature, in 1942, to provide for a Bureau of Industrial Hygiene in the Department of Health and Public Welfare.

#### Establishment of the Bureau—

In August 1942, the Bureau of Industrial Hygiene was established, with the Director, who was also acting as Industrial Hygiene Physician, and an Industrial Hygiene Chemist, on loan from the Federal Department of Pensions and National Health. In September, 1942, an Industrial Hygiene Engineer and an Industrial Hygiene Nurse were added to the staff. A laboratory was established at 320 Sherbrook Street for the purpose of investigating industrial disease, working conditions, and for the purpose of testing certain war materials.

#### Program of the Bureau—

The Bureau is co-operating with the Provincial Department of Labour in developing in Manitoba the industrial hygiene program advocated by the United States Public Health Service. The services necessary are: (1) Medical, (2) Engineering, (3) Safety, and (4) Welfare services. The first two services are being supplied by the Bureau of Industrial Hygiene; the safety services are being developed by the Department of Labour, and welfare services are being facilitated by the Bureau of Industrial Hygiene.

The functions of the Bureau are essentially to study working conditions with reference to health hazards; determine the degree of such hazards; to investigate, evaluate and recommend methods for the control of such hazards; to assist in the preparation of rules and regulations for preventing occupational diseases; to promote occupational health through education and to co-operate in the above matters with agencies such as the Federal Department of Munitions and Supply, the Federal Department of Pensions and National Health, the Canadian Army, the Royal Canadian Air Force, the Manitoba Workmen's Compensation Board, and the Department of Labour.

#### Medical Services Available from the Bureau—

These services include:

- (1) Consultation as to diagnosis and prevention of occupational diseases.
- (2) Consultation as to the administration of an adequate medical service in industry with due regard to our local conditions and supply of available medical services.
- (3) Consultation with industrial physicians and nurses on problems of industrial hygiene.
- (4) Consultations on industrial toxicology.
- (5) Industrial epidemiological studies of specific cases.

#### Engineering Services Available—

The Bureau will make:

- (1) Detailed job analyses of hazardous occupations.
- (2) Suggestions for control of exposure through engineering means.
- (3) Measurements of air velocities of general and local exhaust ventilation.
- (4) Sanitation and housekeeping studies.

#### Chemical Services Available—

These include:

- (1) Dust studies, including counts, particle size distribution and per cent of free silica.
- (2) Analyses of gases and fumes, especially Carbon monoxide, Hydrogen sulphide, Chromic acid fumes, and Nitrous fumes.
- (3) Determination of atmospheric concentrations of lead, cadmium, zinc and arsenic.
- (5) Clinical tests such as urine sulphate ratios in benzol poisoning, determination of lead in urine and feces.



*Establishment of Plant Medical Services—*

One of the functions of the Bureau of Industrial Hygiene is to facilitate the establishment of plant medical services. Over twenty-two plants in Manitoba had some form of medical service by the end of 1942. Three of these had services approved by the American College of Surgeons. Several companies are contemplating medical services in the immediate future. The duties of a plant medical service should include the following:

- (1) Emergency medical care of all employees who are injured or become ill on the job, whatever the cause.
- (2) Continued treatment of employees suffering from occupational diseases or accidents.
- (3) Regular inspection of health and accident hazards in the shops, in co-operation with the safety department, engineering department, or other units, for the prevention of occupational disabilities.
- (4) Pre-employment examination to ensure placement compatible with the worker's physical ability.
- (5) Annual periodic examination of all employees and executives with a view to helping them improve and maintain health through the discovery and correction of ailments which they may not be aware of but which later may impair their health seriously.
- (6) Monthly physical examination, if necessary, including laboratory tests, of workers who are exposed to poisonous materials on their jobs. Workers with unusual responsibilities, such as cranimen, hoistmen, and sandblasters, should be examined every six months.
- (7) To maintain and analyze sickness records in order to know how, when, and where lost time due to disability occurs in the plant; to tabulate these records monthly, according to cause, nature, and duration of disabilities, and department or occupation of the patient.
- (8) To co-operate with the personnel department, employment office, or other responsible unit, in the proper job-placement of new workers.
- (9) To make sure that employees returning to work after an absence due to illness or injury are capable of working safely and efficiently, and do not bring communicable disease into the plant.
- (10) To promote and take part in a health education program for employees and their families.
- (11) To make detailed plans for handling large numbers of seriously injured workers in the event of disaster, such as an explosion, fire, etc.
- (12) To co-operate with, and if desirable supervise, all other services in the plant which relate to the health of the workers, such as the food service, the welfare service, safety program, and recreation committees.

*Work Done by the Bureau—*

*Consultations.* From August 15th, 1942, to December 31st 1942, 34 inquiries regarding 22 companies have been received. These included inquiries regarding occupational dermatitis, chromic acid fumes, lead poisoning, welding hazards, carbon monoxide, etc. Eighteen industrial inquiries have been received from physicians.

*Industrial Hygiene Surveys.* Sixteen war industries and three non-war industries have been surveyed in the last five months of 1942. Actual hazards found included benzol, lead, acid fumes, dusts, solvents, halogenated hydrocarbons, nitrous fumes, etc. Three industrial hygiene surveys were done for the Royal Canadian Air Force, and one for the Canadian Army.

*Occupational Disease Reporting.* Twenty cases of industrial disease were reported in the last five months of 1942. Fourteen of these were reported by physicians.

*Silicosis.* Surveys were conducted on five mines, involving 1,760 workers in 1942.

*Medical and Nursing Programs.* The Bureau has been active in advocating the establishment of medical services in industry. Consultations on several phases of this problem were supplied to industry.

*Nursery Survey.* The Bureau surveyed war plants to determine the present advisability of establishing nurseries for children of mothers employed in war industry. As far as the investigation has gone to date, it appears that the children are adequately cared for.

*Co-operation with Other Agencies.* The Bureau has co-operated on many occasions with the Royal Canadian Air Force, the Canadian Army, the Manitoba Workmen's Compensation Board, the Manitoba Department of Labour, the Federal Department of Pensions and National Health, the Federal Department of Munitions and Supply, and the United States Public Health Service.

*Laboratory.* Our laboratory has been established at 320 Sherbrook Street, and is equipped to carry out the analyses indicated above in functions of a laboratory. At present, we are conducting studies on lead, paints, dopes, solvents and dusts.

*Present Program—*

We are endeavouring to survey all the war industries in Manitoba. We have many inquiries from other industries which will extend the time necessary to complete a survey of the war plants. We are endeavouring to carry out the industrial hygiene program outlined above.

*Bibliography—*

Some suggested source material on industrial hygiene is listed below. The list is not intended to be all-inclusive. Books followed by (M.C.L.) are available for loan from the University of Manitoba Medical Library at Bannatyne and Emily Streets. Books followed by (\*) are available for reading during office hours at the Library of the Bureau of Industrial Hygiene, 320 Sherbrook Street.

*Journals—*

- Journal of Industrial Hygiene and Toxicology (M.C.L. & \*).
- Industrial Medicine (\*).
- Public Health Reports, United States Public Health Service (M.C.L. & \*).
- Industrial and Engineering Chemistry (\*).
- Science (\*).
- Industrial Bulletin of New York State Department of Labor (\*).
- News Bulletin of Division of Industrial Hygiene of United States Public Health Service (\*).
- Industrial Hygiene Digest (\*).
- Monthly Bulletin of Indiana State Board of Health, January 1943 issue (\*).

*Books—*

- A Textbook of Occupational Diseases of the Skin: Schwartz and Tulipan (\*).
- Outlines of Industrial Medical Practice: H. E. Collier (\*).
- Occupational Disease: R. T. Johnstone (M.C.L.).
- Industrial Toxicology: Alice Hamilton (M.C.L. & \*).
- Silicosis and Asbestosis: A. J. Lanza (\*).
- Medical Clinics of North America, July 1942 (\*).
- Toxicology: W. D. McNally (\*).
- The Dermatogoses or Occupational Affections of the Skin: R. Prosser White (\*).
- Preventive Medicine and Hygiene: Rosenau (M.C.L. & \*).
- Occupation and Health: International Labour Office (\*).
- Design of Industrial Exhaust Systems: J. L. Alden (\*).
- Industrial Solvents: I. Mellan (\*).
- Noxious Gases: Henderson and Haggard (\*).
- Industrial Dust: Drinker and Hatch (\*).
- Industrial Hygiene: Lanza and Goldberg (\*).

In addition to the above literature, there is extensive material available for reading in the abstract files at the Library of the Bureau.

## Department of Health and Public Welfare

### Comparisons Communicable Diseases--Manitoba (Whites Only)

DISEASES	Jan. 1-30, 1943	Dec. 3-31, 1942	Jan. 1-28, 1942	Dec. 3-31, 1941
Anterior Poliomyelitis .....	3	3	2	4
Chickenpox .....	264	414	412	356
Diphtheria .....	18	23	9	17
Diphtheria Carriers .....	1	2	1	7
Dysentery—				
Amoebic .....	—	—	—	—
Bacillary .....	—	—	—	—
Erysipelas .....	5	2	3	7
Encephalitis .....	1	—	—	1
Influenza .....	21	17	55	80
Measles .....	97	42	396	166
Measles — German .....	—	3	47	12
Meningococcal Meningitis .....	3	1	3	3
Mumps .....	433	275	366	210
Ophthalmia Neonatorum .....	—	—	—	1
Pneumonia — Lobar .....	5	5	12	10
Puerperal Fever .....	—	—	—	1
Scarlet Fever .....	41	52	91	91
Septic Sore Throat .....	—	1	13	4
Smallpox .....	—	—	—	—
Tetanus .....	—	—	1	—
Trachoma .....	1	—	—	1
Tuberculosis .....	32	27	20	93
Typhoid Fever .....	1	2	3	4
Typhoid Paratyphoid .....	—	—	—	—
Typhoid Carriers .....	—	—	—	—
Undulant Fever .....	—	—	1	—
Whooping Cough .....	149	118	19	23
Gonorrhoea .....	174	110	—	—
Syphilis .....	45	53	—	—
Meningococcal Meningitis Carriers .....	2	—	—	—

**POLIOMYELITIS**—Three cases reported in Manitoba, all from the City of Winnipeg. One case in Minnesota. Poliomyelitis was rarely diagnosed in January. Is it changing its seasonal incidence, is its diagnosis better, or is it that the virus infection is more prevalent?

**DIPHTHERIA**—Eighteen cases in Manitoba, thirteen of them in Winnipeg.

**DYSENTERY AMOEBIC**—Four cases in Minnesota. We may get cases in Manitoba, so should have it in mind.

**ENCEPHALITIS**—One case in Winnipeg and one in North Dakota. There is a great deal still to be learned about this disease.

**MENINGOCOCCAL MENINGITIS**—Just enough of this in all three Provinces and the two States to make us be on our guard. The two carriers were found on swabbing United States soldiers at Camp Shilo.

**MUMPS**—Are quite prevalent.

**SCARLET FEVER**—Endemic, perhaps slightly less in Manitoba.

**SMALLPOX**—One case in North Dakota. Vaccinate!

**TRICHINOSIS**—Fifteen cases in Ontario. All pork, especially in sausage, should be well cooked.

**TYPHOID**—Is still with us.

**WHOOPING COUGH**—Is prevalent in Winnipeg and its suburbs. Is it being adequately reported from the rural areas?

**VENEREAL DISEASE**—On account of a tendency to increase during war time we hope that every case is being reported and that a real effort is being made to discover the source of every case. We are anxious to assist you in every way possible.

### DEATHS FROM COMMUNICABLE DISEASE December, 1942

**URBAN**—Cancer 60, Pneumonia Lobar 6, Pneumonia (other forms) 2, Tuberculosis 5, Syphilis 4, Influenza 3, Diphtheria 2, Poliomyelitis 1, Typhoid Fever 1, Hodgkins' Disease 1. Other deaths under 1 year 22. Other deaths over 1 year 206. Stillbirths 8. Total 321.

**RURAL**—Cancer 31, Tuberculosis 22, Pneumonia Lobar 3, Pneumonia (other forms) 17, Influenza 3, Septicemia and Purulent infection 3, Diphtheria 1, Syphilis 1, Whooping Cough 1, Hodgkins' Disease 1, Dysentery 1. Other deaths under 1 year 21. Other deaths over 1 year 191. Stillbirths 15. Total 311.

**INDIANS**—Pneumonia (other forms) 10, Tuberculosis 7, Measles 1, Syphilis 1, Dysentery 1, Dis. due to Spirochetes 1. Other deaths under 1 year 6. Other deaths over 1 year 2. Stillbirths 2. Total 31.

DISEASE	Manitoba Jan. 1-30, 43 *737,935	Ontario Jan. 3-30, 43 *3,824,734	Saskatchewan Jan. 3-30, 43 *905,974	Minnesota Jan. 3-30, 43 *2,792,300	North Dakota Jan. 3-30, 43 *641,935
Anterior Poliomyelitis .....	3	—	—	1	—
Chickenpox .....	264	1721	181	256	1
Diphtheria .....	18	11	1	14	1
Dysentery—					
Amoebic .....	—	1	—	4	—
Bacillary .....	—	—	—	6	—
Erysipelas .....	5	6	2	3	3
Encephalitis .....	1	—	—	—	1
Influenza .....	21	87	17	6	159
Measles .....	97	349	263	50	63
Meningococcal Meningitis .....	3	13	1	5	2
German Measles .....	—	46	7	—	—
Mumps .....	433	4344	315	—	348
Pneumonia, Lobar .....	5	—	—	—	—
Scarlet Fever .....	41	493	60	300	56
Septic Sore Throat .....	—	3	—	—	—
Smallpox .....	—	—	—	—	1
Trachoma .....	1	—	—	—	7
Trichinosis .....	—	15	—	—	—
Tuberculosis .....	32	212	2	28	16
Tularemia .....	—	—	—	1	—
Typhoid Fever .....	1	1	—	3	—
Paratyphoid Fever .....	—	1	1	—	—
Undulant Fever .....	—	3	—	—	—
Whooping Cough .....	149	474	18	291	81
Diphtheria Carriers .....	1	—	—	—	—
Meningococcal Meningitis					
Carriers .....	2	—	—	—	—
Gonorrhoea .....	174	464	—	—	20
Syphilis .....	45	424	—	—	21

\* Approximate Populations